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ABSTRACT

In this report, Kentucky's goals for learning are outlined, in terms that can be assessed. Part 1 provides an overview of events that facilitated the redefinition of statewide learning goals. The second part presents valued outcomes for each of the state's six educational goals: students will apply basic communication and mathematics skills to life situations; apply core concepts and principles from the major disciplines to life experiences; demonstrate self-sufficiency; demonstrate responsible group membership; think and solve problems; and integrate knowledge across disciplines. Charts identify the valued outcome, give examples of how they are demonstrated, and describe benefits to students. The third part describes ways in which assessment, curriculum, and instruction will change. (LMI)

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Kentucky's Learning Goals and Valued Outcomes

ED344284

Report Summary

The Council on School Performance Standards

EA 023705

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Draft
September 1991

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The content of this report represents a year of hard work by hundreds of Kentuckians stepping out on the cutting edge of educational reform to pursue a very awesome task. Nothing is more important to Kentucky's reform effort at this time than clearly defining what students of the future should know and be able to do. Those who have worked on this project have performed a very unique service to the Commonwealth. As Executive Director of the Council on School Performance Standards, charged with framing Kentucky's learning goals in terms that can be assessed, I want to acknowledge the efforts of key contributors and producers of this report.

First, I want to recognize the excellent contributions of task force members and advisory members, mostly teachers, who gathered information, developed hundreds of assessment tasks, and helped identify valued outcomes. Also, I want to thank eleven task force leaders who worked timelessly over the past year and who have contributed evenings, holidays, and weekends to help me manage this statewide development process.

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Third, I want to recognize the superb professional contributions of Fran Salyers, Nancy Kelly, and Jacqueline Cantrell who were on loan from the Department of Education to edit various parts of the report. In addition, I want to recognize the excellent word processing skills of Leslee Hellmann, Angie McCoy, and Kay Lykins also from the Department who typed significant portions of the report in a severe time crunch.

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Roger Pankratz
Executive Director

Part I
Redefining What Students Learn in School

Fullfilling A Dream

Jesse Stuart, the renowned Kentucky author and teacher in his book *The Thread That Runs So True*, (1958) wrote he dreamed of a day when Kentucky children would no longer have to "grow up like uncultivated plants." He recounted the days of the '20s and '30s when as a teacher he observed hundreds of farmers who had better barns for their cattle, pigs, and horses than schoolrooms for their children. Poverty, illiteracy, and unequal educational opportunities were the realities of the day; and powerful politicians often blocked school reforms. However, Stuart refused to accept the idea that children born in the city or town should have a better education than children born in rural areas.

The dream of an adequate and equitable education for all children to a large degree remained unfulfilled as Kentucky approached the last decade of the twentieth century. Statistics gathered during the '80s showed that Kentucky ranked near the bottom among states in per pupil expenditures on education, high school graduation rates, and adult literacy. Many poorer districts spent less than half as much as wealthier districts on each child's education, held classes in run-down buildings, and could not provide students advanced courses in science, mathematics, foreign languages, the arts, or humanities. Differences in achievement test scores and dropout rates between poor and wealthy districts clearly reflected those inequities (Dove, 1991).

On June 8, 1989, Kentucky took a giant step toward what Jesse Stuart dreamed of when the Kentucky Supreme Court directed the General Assembly to create and establish a new "efficient system of common schools" that complied with the Kentucky Constitution. The court defined an efficient system of common schools as "an organization that provides a free and adequate education to all students throughout the state regardless of geographical location or local fiscal resources." The court established a new legal framework for the school curriculum by setting forth seven capacities as necessary for an adequate education. These seven compacities were:

1. skills in oral and written communication;
2. knowledge of the economic, political, and social systems;
3. understanding of government processes;
4. self-knowledge of mental and physical wellness;
5. a grounding in the arts;
6. preparation for advanced training; and
7. competitive academic and vocational skills.

Council for Better Education. v. Wilkinson, No. 85-CI-1759, slip op. at 4 (Franklin Cir. Ct., Oct. 14, 1988)

Defining New Learning Goals

In February, 1989, separate and apart from the action of the courts, Governor Wallace Wilkinson created a twelve-member Council on School Performance Standards by executive order and charged it with determining what all students should know and be able to do and how learning should be assessed.

The Council began its work by traveling across the state conducting focus group interviews with business leaders, employers of graduates, parents, and educators, asking them what a high school graduate of the year 2000 should know and be able to do. Information from the group interviews was used to construct a twenty-two minute telephone survey. More than 830 Kentucky residents of voting age were called and asked their opinions about what they thought should be expected of future high school graduates.

The response from the nearly 300 hours of telephone interviews was clear and consistent. While there was plenty of support for learning basic communication and math skills, the most important learning outcome identified was that students should be able to use their skills and knowledge in mathematics, science, social studies, and other disciplines in situations similar to what they will experience in the real world. In addition, Kentucky residents stated that students should develop personal attributes such as self-sufficiency, self-confidence, and adaptability. They should learn to become responsible members of a family, work group, or community as part of their school learning experience. Also, Kentuckians believed students should learn to think and solve problems, to make informed choices, and to support their decisions. The information from the statewide survey was presented to five task forces of educators from across the state who were asked to advise the council on possible learning goals for all students and on ways in which these goals might be assessed.

In September, 1989, the Council on School Performance Standards produced the report *Preparing Kentucky Youth for the Next Century: What Students Should Know and Be Able To Do and How Learning Should Be Assessed* and presented it to the Curriculum Committee of the Legislative Task Force charged with creating Kentucky's new "efficient system of common schools." Six broad learning goals for all students were recommended with particular emphasis on what students should be able to do.

Goal 1. Apply basic communication and mathematics skills in situations similar to what they will experience in life

Goal 2. Apply core concepts and principles from mathematics, science, social studies, arts and humanities, practical living studies, and vocational studies to situations similar to what they will experience in life

Goal 3. Demonstrate self-sufficiency

Goal 4. Demonstrate responsible group membership

Goal 5. Think and solve problems

Goal 6. Integrate knowledge across disciplines

In addition, the Council recommended that the state launch a major effort to assess student performance beyond what can be measured by paper-and-pencil tests. Also, it was recommended that the state initiate long-range development efforts that support school reform in implementing the new learning goals.

Giving Direction and Support

The Kentucky Education Reform Act breathed life into the dream of a better education for all children in the Commonwealth because it required new ways of thinking about teaching and learning, new ways for schools to make decisions about how children learn, and more money for education, especially for poorer districts.

The new reform law charged the Council on School Performance Standards to further define the new learning goals in terms that can be assessed and the Kentucky Department of Education to create and implement a new statewide system for assessing what children learn, including what they can do with what they learn. Furthermore, the new law stated that a high level of performance shall be expected from all students, and schools shall be accountable for what students learn and shall keep students and their parents informed of learning progress.

Kentucky's new law placed special conditions on how the Council should further define Kentucky's new learning goals. First, the Council was to involve statewide committees of teachers, administrators, and other educators in completing its task. Second, the Council was to describe what is most important for students to learn but also to focus on what students can do with what they learn. Third, the Council on School Performance Standards was required to present its recommendations to the State Board for Elementary and Secondary Education for adoption by December, 1991.

Defining What Students Learn in School -- Valued Outcomes

In the summer of 1990, the Council on School Performance Standards created eleven task forces with statewide representation to assist them in further defining Kentucky's learning goals. The eleven task forces had a total membership of 125 persons composed of teachers, school administrators, college professors, and representatives from the Kentucky Department of Education. The results of ten months of work by the eleven task forces are the identification and description of seventy-five "valued outcomes" related to Kentucky's six learning goals. Valued outcomes require students to demonstrate they can use skills and knowledge in situations they might experience in real-life or advanced training after high school. Examples include writing a news story, producing a report, making an oral or video presentation, solving a complex problem, creating a new product, or choosing and supporting a best course of action. Consistent and high quality performances on these types of tasks are called **valued outcomes** because they are **valued** in the real and adult world. They are **outcomes** because they are the results of learning. Tasks that are similar to which students will experience in real-life are called **authentic** tasks because they are seen by the students as worth learning and worth doing.

Valued outcomes have been developed for Goal 1, **basic communication and math skill areas**; Goal 2, **core concepts and principles** or "big ideas" in each of the disciplines (e.g., science, social studies, math, etc.); goals 3 and 4, the **personal attributes** required for self-sufficiency and responsible group membership; and for goals 5 and 6, the **thinking processes** of problem solving, critical thinking, and integrating knowledge.

Basic communication and mathematics skills such as reading, writing, speaking, calculating, and measuring are the tools of gathering, processing, and expressing information. They are used across all fields of knowledge and are the building blocks for learning. Without those skills it is impossible to learn in school, to learn on one's own, to qualify for a job, or to be a contributing member of a family, work group, or community.

Core concepts and principles are the main ideas from each of the major disciplines. Core concepts are to knowledge what hub cities are to airlines. Energy, for example, is a core concept because it gives meaning to experience with heat and light, body metabolism, and movement. Another example of a core concept, democratic principles, is a very important idea because it is an organizer for how individuals think and act in government affairs. Also, it is a set of beliefs and procedures that guide the interactions among people in our society. Learning the

core concepts or big ideas and learning how to use them will help students to organize knowledge and make sense out of real-life experiences past, present, and future. Valued outcomes that require students to identify and apply core concepts have been developed for science, mathematics, social studies, the arts and humanities, practical living studies, and vocational studies.

Personal attributes are those attitudes and dispositions that enable students to use their knowledge and skills in productive ways. The development of valued outcomes for personal attributes, such as adaptability, resourcefulness, self-discipline, and acceptance of rights and responsibilities, helps to produce students who are self-sufficient individuals and responsible members of a family, work group, or community (goals 3 and 4).

Thinking processes are the capstones of learning that are developed in goals 5 and 6. They are the skills and processes that give students the competitive edge in their personal lives, in their work or professions, and as community leaders. Valued outcomes have been developed around such thinking processes as critical thinking, problem solving, applying different points of view to a problem or situation, and connecting ideas across fields of knowledge.

Part II
Kentucky's Valued Outcomes

What Students Will Learn, Will Be Able To Do, And How Students Benefit

What Kentucky students of the future will learn are the valued outcomes -- the ability to perform well applying basic skills and core concepts, demonstrating personal attributes, and using thinking skills. How learning will be assessed will not only be through tests such as those we have used in the past but also by student performance on meaningful assessment tasks similar to what they will experience in life. How students will benefit will be demonstrated by what they will be able to do in life: get better jobs, become better managers of their personal lives, and become more responsible family members and more productive citizens in the communities in which they live.

On the following pages the seventy-five valued outcomes identified by task forces as the most important for students to learn are presented in a three-column format. Column I identifies the valued outcome (what students will learn). Column II presents examples of tasks students might be expected to perform to demonstrate that they have achieved the valued outcome. Column III presents examples of why the valued outcome is important and how students will benefit by achieving the valued outcome.

Goal 1 Develop students' ability to use basic communication and math skill areas for purposes and situations similar to what they will encounter in life

What Students Will Learn (Basic Communication and Math Skills) Areas	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Finding information and ideas	• use electronic data sources (computer, calculator, etc.) to find information (such as medical records, job descriptions, or consumer information) • conduct an interview to gather information	• can become their own resources in these changing times • can improve their decision making by seeing trends and changes in their economic, physical, and business lives
Gathering information and constructing meaning from ideas		
• Reading	• read several front-page newspaper articles and editorial articles for a comparison in language, style, and content. Report in groups panel discussion findings or persuasive language, factual information, etc. • read several advertisements in different papers (city, local, *Wall Street Journal*) for jobs or career positions and evaluate the content and style in a report on the job market • read autobiographies of people they admire and report in writing on his/her personal experience of that person and their life -- before and after reading the book (giving examples of what situations influenced the student's thinking the most and why) • read a play and describe for the class how this experience was different from reading a novel or biography -- scenes presented aloud for emphasis • read and follow written directions for operating a computer or other technical equipment	• can follow written directions, which allows them to operate equipment or complete projects without outside help • can enrich their personal lives through reading for pleasure • can understand information pertaining to a broad range of areas, permitting them to be productive, responsible citizens
• Observing	• observe others' behaviors at a series of three different events (basketball game, church, student council meeting, family dinner at home, PTA, volunteer environmental meeting, etc.) and report on what was observed, what conclusions were drawn about individuals and their environments, and how one might affect the other • observe three different broadcasts of the same event and analyze the differences in the coverage, then comment on the causes and/or effects of the differences • view a work of art (statue, painting, etc.) and write commentaries on the thoughts and feelings it evokes • observe a multicultural event (foreign ballet, interview with foreign businessmen or politicians) and prepare lists of observed differences and similarities	• are able to understand different cultures and compare information when watching television, satellite programs, and when observing other people and events • are able to continually learn from life and keep pace with their changing environment

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Goal 1 *(cont.)*

What Students Will Learn (Basic Communication and Math Skills) Areas	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Gathering information and constructing meaning from ideas *(cont.)*		
• Listening	• listen to a debate between two student council members (or political figures, etc.) or to interviews with several people; report to class on the issues, points made, information given; and give personal evaluation of participants' documentation and number of resources • listen to audio directions given by computerized bank tellers and other machines and follow the directions accurately • attend a city planning meeting or another civil event where negotiations or city hearings are being conducted and report on issues and outcomes	• can become well-informed consumers and buy more effectively • can improve their interpersonal and negotiating skills, which will help them to relate better to others as well as have their own needs met • can operate effectively in an increasingly automated world (i.e., electronically delivered messages in banks, gas stations, laundry)
Processing information and ideas		
• Quantifying	• estimate costs • support conclusions through recording, determining relevancy of and organizing information	• can resolve questions or solve financial problems alone • can recognize profit and loss relationships and make and support better decisions through the process
• Calculating	• calculate discounts on goods and services • evaluate the best loan offer on a house or car • develop a budget; compute averages and percentages of wages, fringe benefits, and life and health insurances	• can be comfortable in creating a budget or financial plan for themselves or for work • can create more balance in their lives because they can calculate a return on invested money or time, which eliminates unwanted peaks and valleys in money or energy use
• Visualizing	• recognize and describe shapes and sizes • estimate and calculate storage capacity if converted from one shape to another	• can decorate a house, make a painting, plan a city, develop land, create a garden, and generally expand their lives by using visualization
• Measuring	• estimate and measure sizes of objects, distance, time, and weight	• can enjoy safer personal lives or increase work opportunities in situations that require appropriate measurements (driving a car at safe intervals, measuring medications sensitive to the weight and size of an individual, or operating equipment when weights and measurements are keys to safety) • can enhance personal or business lives by cooking an excellent meal when measurement is essential to a good finished product

Goal 1 *(cont.)*

What Students Will Learn (Basic Communication and Math Skills) Areas	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Processing information and ideas *(cont.)*		
• Mathematical Reasoning	• formulate conclusions and predictions based on past and present information	• can use reasoning skills to formulate successful business plans; resolve personal conflicts; analyze graphs, statistics, and other concepts often used in business, environmental and consumer reporting so that they can make wiser decisions • can evaluate a job offer, vote wisely, solve problems
• Classifying	• group and classify ideas and objects and organize information in logical categories	• can simplify their life and decision making through organizing information and seeing relationships
Expressing information, thoughts, and emotions		
• Writing	• write reports, letters, essays, and journals	• can express themselves in writing to expand their personal lives and employment opportunities
• Speaking	• make an effective oral presentation • express a feeling or abstract concept through speech • appropriately communicate thoughts in a conversation • speak informatively or persuasively in front of a group or play a role that requires giving information or sharing an emotion through characterization	• can function effectively and creatively in a growing information environment • can enrich their personal relationships by comfortably communicating feelings
• Visual Art	• express points of view through the use or creation of visual art • develop presentations using illustrations, photographs, charts, graphs, etc., to effectively communicate an idea • use visual art to communicate an abstract idea to a non-English speaking audience (or a foreign language class in which they strive to visually communicate in a universal language)	• by creating and using visual arts, can increase their ability to express ideas and emotions with more clarity and impact, therefore using the technique in presentations effectively • through visual arts, can transcend communication barriers that are becoming more frequent in our global society
• Music	• discuss the effects of music on personal or group actions • use music to express ideas	• can appreciate their individuality and talents by expressing those gifts in music or dance creations • can enrich their lives through appreciation of music or movement in the arts • have a new awareness of how music is used to influence their buying, opinions, and emotions in everything from movies to the dentist chair; can use that awareness when making decisions
• Movement	• use movement to express ideas • use knowledge of movement to choreograph a dance or play • use movement to express emotion	• can use movement as an expressive form of exercise therapy, improving health by using an art form such as dance

Goal 1 *(cont.)*

What Students Will Learn (Basic Communication and Math Skills) Areas	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Using electronic technology	• use word-processing software to produce written documents • create spreadsheets to organize information • use video equipment to develop and make presentations and to express ideas • discover new ways to expand their knowledge in a given area through combining several automated resources in their projects	• are able to keep pace with a highly visual and information-oriented world • have the ability to create new methods of communication throughout their lives by combining several forms of technology • can use basic knowledge of how to gain access information to help make decisions or to work on projects

Goal 2 Develop students' ability to apply core concepts and principles from the sciences, mathematics, arts and humanities, social studies, practical living studies, and vocational studies to situations they will encounter in life

Science

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Nature of Scientific Activity • observing • inferring • predicting • designing experiments	• investigate the consequences of failure to recycle paper • design an experiment to identify important variables that contribute to the death of fish in a stream	• can design solutions to problems to help themselves or society • can make sound judgments or draw reasonable conclusions in their business or personal lives
Patterns • weather	• create and produce a weather forecast combining skills in observation and information gathering with science skills	• are prepared to manage change within their environment more effectively by having an awareness of how change affects their physical world (i.e., clean air, water, health, food supply, etc.)
• erosion	• combine skills in technology with science in creating a video on the effects of erosion on buildings	• are able to make beneficial decisions personally, politically, and economically to sustain themselves and their environment in the future
• global warming	• create a model or video depicting the effects of global warming on the earth and make presentation to include predictions for the future based on scientific data and observation	• are able to manage change in themselves and their environment more effectively by understanding and applying the concept of patterns -- how they develop and work
• trends/growth	• express in writing, presentation, or model form predictive growth patterns for a chosen city or town within the next decade using existing knowledge of any change patterns they feel pertinent	• are able to make and support predictions for the future based on the knowledge of current patterns, enabling them to better prepare for the future
Systems and Interactions • solar systems • living systems • energy systems	• design and deliver a creative report on how one solar system relates to or affects another; use research, technology and any support systems of knowledge relevant to the project • design, plant, and care for an organic garden • compare efficiency of heating and cooling devices	• can feel more competent in life by knowing how things work together • are able to design more effective living conditions for themselves • can decide the best and most cost-effective way to heat or cool their homes or decide on healthful food products for their diets
Models and Scale • living cell models • blueprints • mathematical models	• design a model to illustrate the growth of cancer cells • create a visual map of an area including the appropriate notations on measurements (such as distance, angles, depth, etc.) and relate through a presentation what this map tells about the topography • design a building as a group project, drawing on skills from each other • design mechanical devices that make work easier	• can solve problems by using a concrete model or scale-size replica in place of the more abstract concept • can relate and test abstract ideas through use of physical props • can use models to explain the behavior of objects, materials, and living things which will better enable them to predict and prepare for future changes

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Goal 2 Science *(cont.)*

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Nature's Tendency to Remain Constant • chemical equilibrium • conservation of energy • feedback systems	• record and explain heartbeat rate over time • work with another student or within a small group conducting an experiment in which mechanical energy is changed to chemical energy • describe relationships among organisms in a specific environment	• can draw realistic conclusions about the effects of drugs and chemical dependency on a healthy body and subsequently protect their own health and welfare • can be aware of the importance of balance in all systems and can make wise decisions about their current ecosystems and preservation and conservation laws
Evolution (change over time) • change in living things • change in land forms • change in society	• write an essay explaining why pesticides no longer control certain types of mosquitoes • explain why some rocks are round and some have sharp edges (use research techniques to draw conclusions and visual aids) • document an environmental change and write alternative scenarios based on other options and decisions that could be made	• can base their voting or consumer buying decisions that involve environmental issues on an understanding of history and how past choices are now affecting their quality of life • have the ability to develop or support laws and principles that will affect their lives as well as future generations (i.e., land fills, toxic waste, speed limits, products made of plastic or styrofoam) and prepare for careers that may not yet be apparent • can create better alternatives to methods of waste control and disposal that affect the quality of their lives and society

Goal 2

Mathematics

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Number • integer • fraction • decimal • percent	• count discrete collections (populations) • measure for continuous quantities (time, length, mass) • make ratio comparisons (discounts, probabilities, map scales) • identify locations (temperature, time lines, test scores) • use codes (highway, telephone, product model numbers) • understand derived formula constants (pi in $A = pi \times r^2$)	• are able to use basic mathematical concepts when buying a home, negotiating a loan, using a consumer report, making a good purchase, or selecting the best retirement plan and investments • on an advanced level, can apply mathematical concepts to understanding, designing, or using a future global monetary system, etc.
Mathematical Procedures • math rules • logic • order • equality/inequality	• use a calculator to determine the best buy on a commodity sold in five different quantities at different prices • use math relationships to determine how much weed-killing chemical to add for an in-line hose sprayer • use math relationships to construct a chart for healthy nutrition illustrating understanding of gram weights, caloric counting, and portion size and measurement	• are able to apply these skills to everyday problems in health, finance, household budgeting, dressmaking, or designing and building a house • can apply mathematical procedures to simplify and increase safety in household chores such as mixing lawn pesticides, watering plants and interpreting food labels appropriately to ensure family health
Space and Dimensions of Objects • shapes of objects • three-dimensional space and objects • geometric properties	• describe what an unfolded box will look like when folded • draw three-dimensional objects on a two-dimensional (flat) surface • within a small group, contribute to constructing a geometric model to represent a problem situation, then apply appropriate properties of the figures • use shapes and dimensions to provide insights that often remain hidden from strictly analytical approaches • show how applications of mathematics occur in business, politics, and social and physical sciences	• are able to create new and innovative art forms as a form of self-expression and/or for work • are able to design and use construction plans to build their own homes and expand their employment opportunities in unusual ways (making set designs for movie makers like Spielberg or Disney World or becoming architect) • can solve problems relating to use of space in their own homes without outside help and expense
Measurement • length • time • mass • money • capacity	• determine the largest dog pen that can be built with 80 feet of fence • determine the size of a moving van needed to contain a household of furniture • create a household budget for a six-month period of time based on given income, several fixed costs, and other suggested expenses	• have the ability to exercise appropriate and wise judgments in life, allowing them to park their cars with ease, determine the size and impact of an oil slick for work on environmental causes, or safely load cargo on a boat • enhance life and business opportunities by becoming a problem solver (i.e., traffic flow, product distribution, communications, epidemology, or natural resource management)

Goal 2 Mathematics *(cont.)*

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Changes • number series and sequences • change equations using algebra • change equations using space representations	• locate information on use of home computers over past ten years and predict growth • show graphically how overhead costs and expenditures for advertising affect profits, given marketing data on soft drinks • create a new possibility for the use of a space	• are able to anticipate or improve the probable outcome of an event in their personal or business lives through recognizing change and trends
Mathematical Structure • number patterns • systems of equations • logic • proof	• set up an equation to determine the amount of money available at the end of a year with compound interest paid on an amount deducted from each paycheck • present logical arguments that a fixed interest on a home loan is more desirable than variable interest at current money-market rates	• can use the concept of making money with money and become more effective and wise in any money transaction • can effectively and logically handle money to help them balance income with spending, savings, and investments • can use these mathematical structures for scientific study such as ONB or for solving real-life scheduling problems in personal or business life; or analyze artistic designs
Data • probability • statistics • mean • median	• develop a strategy to sample the opinion of students in a school • collect data on the numbers and types of knowledge that require use of books read by students in the schools and present a report with graphs and illustrations showing statistical information	• can compare consumer products for the best buys or make better decisions on insurance policies, political candidates, or stock-market investments

Goal 2

Social Studies

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Democratic Principles • justice • equality • responsibility • freedom	• present arguments for and against closing a school, locating a waste dump, or rezoning land for business • hold a mock trial with other students to demonstrate democratic principles	• can use democratic principles in daily life to cause the changes they want rather then feeling victimized • can feel more in control and a part of society through voicing opinions on zoning in town meetings or voting for their candidates in state or national elections
Structures and Functions of Political Systems • different governments • authority • power • rights and responsibilities • civic action	• present an oral report on how revolutions in China, USSR, France, and America have been alike and different and why • work within a group to compose a play, poem, or short story to illustrate the concept of different governments, authority, power, rights and responsibilities of civil action	• can use knowledge of the structures and function of political systems to help them develop personal value systems • can use understanding of political systems to establish personal principles by which to live
Structures and Functions of Social Systems • group norms • customs • social roles • prejudice and discrimination • social stratification	• design a museum display to show the differences in social structure of a Jewish family in New York, a Mexican-American family in the Southwest, and a rural family in Kentucky • compare social rituals: family life, birth, marriage, death, etc., in several cultures	• are better prepared to understand and respect differences in co-workers as cultural diversity becomes more common within the work force • can expand personal world as they redefine their own social roles • eliminate prejudices from their personal views
Cultural Diversity • culture • choice • equality • diversity • interdependence	• interview older family members in the community to determine where their ancestors emigrated from and the influence of their past on beliefs and customs • write a report on common beliefs and differences • research the history of traditions in religion, politics, schools, etc., and present a written and oral report	• have a better understanding of how differences originate; use that knowledge in dealings with other cultures • are more global in their thinking and can expand ideas and problem solving to nations outside the U.S., thus increasing opportunities for work and personal growth
Structures and Functions of Economic Systems • scarcity • supply and demand • interdependence • markets	• develop a chart of goods and services that are personal needs and wants describing the resources necessary to acquire items on the list; select possible strategies for getting resources necessary for needs and wants • work as a team member to develop a plan to provide and distribute a resource currently in short supply • work within a group to discover a new market or use for an existing product	• can operate within a group to complete a task • can be more creative in dealing with the ongoing issues of scarcity and conservation in the real world • are aware of the interdependence in the world and able to see the importance of their own or any individual contribution to the whole

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Goal 2 Social Studies *(cont.)*

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Relationship of Geography to Human Activity • location • place • region • movement	• develop a display showing the 10 largest population centers in the United States; describe what factors caused these to be population centers and the advantages and disadvantages of living in population centers	• have the ability to understand how environment affects the lifestyle of the population in an area and use the information in business to find a new market for a product, predict sales (snow tires or rust-resistant product, etc.) • can make more informed decisions on where to live
Historical Perspective • learning from historical events, persons, and documents • cause and effect • change over time	• read five different accounts of the start of the American Revolutionary War and write an interpretation of what happened	• are able to use their abilities to see relationships between events, places, and documents in history to make better decisions when they see similarities today • understand that there are multiple perspectives of history and current events and use that understanding to make their own sound, objective decisions
Relationships to Self and Other Persons • self-identity • learning • cognition • adapting behavior	• interview parents regarding the personal and social behavior of teenagers in their generation and write a report comparing a past generation with today's generation and the reasons for the change	• can use the understanding of how generations change or in what ways they are the same to establish stronger family relationships • can use the information about past generations to establish a new respect or at least new understanding of older people • can work effectively with older people within the new diverse work force of the 21st Century

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Goal 2

Arts and Humanities

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Production • art (line, shape, form, color, space, texture) • dance (movement, space, time, energy) • drama (verbal quality, non-verbal behaviors, plot, action, character) • literature (plot, character structure, setting, tone, style, literary devices) • music (rhythm, melody, form, harmony, expression, style)	• develop a portfolio of art work • as members of a group, create a dance sequence • participate in drama depicting the history of the local community • write a story about growing up in _____, communicating a particular point of view • as members of a group, create and record a 60-second musical video commercial	• experience enriched lives with greater understanding and appreciation of the arts • are able to express themselves in one or more art form, which increases job opportunities • can experience greater creativity in their personal and business lives enabling them to excel in both • can recognize the value of independent thought through creativity
Analysis of Art Forms • observation • reflection • criticism • interpretation	• review production or forms of art, dance, drama, literature, or music and write a critical analysis using established criteria • compare art forms from many cultures and report on how the same forms are often interesting from a different perspective	• can develop a refinement in tastes due to a critical eye for the arts thus becoming better writers and more competent and confident decision-makers in decorating their homes and selecting art • are able to broaden understanding of other cultures, thus bridging cultural barriers as the U.S. becomes part of a global market and workplace • can apply analytical skills to various life and work situations, which will help them become better decision makers
Aesthetics • appreciation for art • sensitivity to art • valuing creativity	• observe and/or participate in visual arts, dance, drama, literature, or musical productions and describe the ideas and feelings communicated by the presentation or products • participate in a mock fund-raising panel to support their favorite art form, then present reasons and values of what they have learned from the arts as support for their campaign	• can achieve a better balance between work and leisure time by having learned more about the expressive forms in life and how to use them for relaxation and self-expression • can become an informed supporter of the arts in their communities
Cultural Heritage • historical perspective • geographical perspective • personal perspective • beliefs	• review an art form or literature and write a description on how the art form or literature is a product of a given time, personality, place, and society • as members of a group, research a particular belief (religious, political, etc.) through a time in as many art forms as possible and create a collage of sights and sounds from an era • examine a document written in English and identify words and phrases borrowed from other cultures and languages • working within a group, research symbols and forms in art from a historical perspective; collectively write a report and individually present both orally and visually their findings by using pictures and representations of art forms from many cultures	• can use perspective of how cultural heritage has affected their own belief systems and become more aware of their own life filters. This knowledge of cultural heritage enables the student to reduce cultural bias in decision making • can integrate more effectively into a culturally diverse work environment

Goal 2 Arts and Humanities *(cont.)*

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Cultural Diversity • diversity in art forms among cultures • cultural contributions • cultural perspectives • common elements in all cultures	• review a variety of art forms and literature from different countries and develop a video presentation comparing and contrasting the diversity of art and literature from different cultures	• are able to combine the new perspectives gained from art history and man's cultural development with other information forms to establish new traditions in their families or to share a mutual communication form with friends from other countries • are more knowledgeable about why some people behave or think as they do, which fosters better communication and mutual support in our culturally diverse work force and country
Language • structure of languages • vocabulary • sentence structure • transfer of ideas through language	• examine a document written in English and identify words and phrases borrowed from other cultures and languages • work in pairs to set up an experiment to understand the impact of language on this world; one interprets for the other, who is mute for a full school day; they then report on their mutual experiences in an oral presentation	• can be aware how the misunderstanding of a spoken or written word, miscommunicated, can affect their lives, both personally and in business • can be aware that many other subtle influences affect the meaning of a word or sentence. This awareness makes them better communicators and negotiators and aids in better family relationships
Second Language Proficiency • listening • speaking • writing • reading	• serve as a counselor's assistant in reviewing and summarizing a tape of the discussion of a family problem • write TV and radio news stories for countries using the second language • prepare and negotiate a business contract in the second language	• are able to expand work and lifestyle opportunities in this increasingly global world • increase options on how they can serve, support, and understand other human beings throughout the world, thereby increasing their own sense of self-worth and purpose

Goal 2

Practical Living Studies

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Family Life and Parenting • relationships • rights and responsibilities • human life cycle • conflict resolution • child abuse • family crisis • sexuality • parenting • prevention of family violence	• given case studies of family conflict and/or abuse, suggest actions that likely will improve relationships and/or have positive effects on the situations • working within a group, visit an orphanage, senior citizens' home, or some community service organization linked with the human life cycle, then report to the group on observations and write a solution to some observable problem	• can use awareness of relationships within the family and community to resolve some of their own conflicts • are able to assume responsible roles in society and be accountable for their own actions • through awareness, can correct unhealthy habits they may have learned through their own home situations
Consumerism • evaluative skills • lending/institutional lending concepts • budgeting and saving • services • environmental resource management • buying skills	• compare prices on food items, clothing, health products and services, automobiles, and money markets and present a report on best buys with reasons • working within a group, research several savings alternatives and present them to the class in a panel discussion with recommendations for the best one	• are able to deal capably with the concept of reasonable consumer debt, to work effectively within a budget, and to save money • can capably evaluate information and advertising on products and services to make wise buying decisions • can effectively use money as a resource
Physical Wellness • health-related fitness • health promotion • nutrition • personal health	• complete a health fitness test and develop a plan for improving and/or maintaining health-related fitness • within a group, explore various fad diets, and other current nutritional concepts and report findings to class	• can reduce medical costs by using knowledge to follow their own wellness plans • can reduce the possibility of being sold an unhealthy diet concept or practice, therefore leading healthier lives
Mental and Emotional Wellness • self-esteem • stress management • substance use and abuse • addictive behaviors • interpersonal skills • mental and emotional disorders • loss and grief	• given case studies of students who have been victims of drug abuse, identify decision points where behaviors could have been stopped and describe realistic actions that should have been taken • observe and analyze the concept of negative self-talk in self and others and within a group; list negative images that come up with a contrasting view of how to turn them into positive traits	• have the opportunity to live healthier lives and make high-quality personal decisions by applying skills of behavioral changes • can support their own emotional health by seeking the company of other healthy adults • can now use healthy self-esteem to produce the results they want in life (business or personal)
Community Health Systems • accident prevention and injury control • community health networks • environmental health • global health	• identify situations in a local community unsafe or health-threatening and develop an outline for actions to solve the problems • with small groups, research global health and environmental issues and report on steps of instruction and on agencies working to solve the problem (how, what, when, where, why); use visual aids whenever possible	• are able to take responsible and informed roles in community or worldwide health issues, encouraging their sense of purpose and self-esteem • are more familiar with several emerging career fields

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Goal 2 Practical Living *(cont.)*

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Psychomotor Skills • nonlocomotor skills • locomotor skills • manipulative skills • movement principles • analysis of skills	• demonstrate psychomotor skills sufficient to participate in school, play, work, and other activities	• can use knowledge of psychomotor skills to achieve personal safety in performing daily tasks (such as lifting, running, moving objects, sports, etc.) • can experience their capacities for teamwork or for self-discipline and commitment to goals of self-improvement
Lifetime Physical Activities • sport • dance • rules and strategies • training and conditioning • participation versus spectating	• participate in a variety of individual, two-member, and group sport activities that can be practiced for enjoyment throughout life • visit a sports medicine facility and report on safety principles and new techniques to support athletes in personal best performances	• are able to experience commitment to goals • can expand their leisure-time options • can improve their overall health and vitality by staying active • are able to explore personal options for themselves in the healthful use of leisure time

Goal 2

Vocational Studies

What Students Will Learn (Big Idea - Examples)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Career Path • multiple life roles • career opportunities/trends • career diversity/change • interests/abilities/aptitudes	• interview ten persons who hold jobs or positions paying from less than $10,000 per year to more than $100,000 per year and present a report on the education, abilities, interests, and requirements to hold each job or position • using the test results of own abilities, interests, and aptitudes, develop three possible plans to pursue careers after high school • write essays describing three peak times in life when they experienced feelings of success and satisfaction with themselves. What were the key factors? How could those concepts and skills be transferred to work? What kind of work might that be? [Use three areas: (1) skills with things, (2) skills with people, (3) skills with information.]	• have a better concept of their talents • are more focused on possible areas for fulfilling work • experience more self-esteem by directing more of their destiny in career searches • feel more fulfillment by choosing area of work that interests them
Employability Attributes • responsibility • dependability • motivation • honesty • critical thinking • team skills • employability skills	• interview ten employers and develop reports on the most important characteristics they look for in employees • write essays from employers' point of view describing how specific skills are important to their companies and to specific jobs • demonstrate employability skills through obtaining part-time jobs or volunteer positions	• are able to identify and develop personal character traits that will make them more employable • have a greater sense of self-confidence as they learn to develop personal statement of whom they are (i.e., an honest person, a dependable person, etc.) • have the skills to obtain entry-level jobs
Postsecondary Opportunities Search (jobs, school, military) • setting goals • marketing self (application and interviewing) • networking • mentoring	• write high-quality application letters to three potential employers • tape three mock interviews with employers in the community and obtain critiques from the interviews • work with teammate to videotape themselves in three- to five-minute presentation on their qualities and skills and why they should have hypothetical jobs	• are able to concentrate efforts in a special area • are able to use communication and goal-setting skills to obtain ideal jobs • are able to find job satisfaction by concentrating only in areas where they would enjoy working

Goal 3 Develop students' ability to become self-sufficient individual

What Students Will Learn (Personal Attributes)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Positive Self-Concept	• identify personally relevant problems or obstacles that require personal commitment to overcome; set a course of action; give themselves time frame and establish criteria for success (i.e., best interest of self and others) and continually indicate confidence in their abilities to overcome the problems or obstacles	• can experience positive feelings about selves • can gain a sense of well-being and independence
Healthy Lifestyle	• develop four-month plans for personal fitness; carry out plans and develop journals on the successes, failures, and benefits in implementing the plan	• can experience higher levels of physical fitness • can experience the benefits of self-direction and commitment
Adaptability and Flexibility	• placed in a new situation (survival course, simulated disaster, non-English speaking group), plan and implement different procedures that enable one to survive and function	• are able to function capably during transition periods in their lives • are able to use their creative skills successfully when in survival or emergency situations • are capable of functioning well within the 21st Century's culturally diverse work force
Resourcefulness and Creativity	• interview handicapped students, observe existing facilities and procedures, and suggest ten ways to improve conditions for the handicapped • through observation and research, uncover a situation that can be improved or a problem to be solved and present an improvement or solution in writing or through demonstration	• are able to direct own lives to a greater degree by using their creativity • are able to support others more fully by being resourceful with existing resources, thus becoming assets to any organization, community, or family
Self-Control and Self-Discipline	• develop a three-week plan for a diet, budget, physical fitness, or a study schedule that requires a significant change in one's present behavior, then stick to the plan	• are able to set goals, develop a workable plan and follow through without outside help, which in turn supports independent self-concepts and enables them to support themselves through life
Decisions Based on Ethical Values	• describe decisions one would make in a variety of case studies based on real-life situations that involve possible illegal or unethical behavior; describe the value or values on which decisions were made	• have a basis to test values and the principles by which they live life within a world that may or may not support them and make independent and fair decisions
Independent Learning	• learn how to operate a new piece of computer software, hardware, or other relatively complex appliance, given a technical manual and the name, address, and telephone number of the vendor	• are more self-reliant and self-directed which can open to them many more of life's experiences or work opportunities

Goal 4 Develop students' ability to become responsible members of a family, work group, or community

What Students Will Learn (Personal Attributes)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Interpersonal Skills	• serve as effective facilitators between two persons who have become very angry with each other • demonstrate their ability to give and respond to feedback	• are more self-reliant and self-directed which opens to them many more life experiences or work opportunities • can demonstrate qualities of leadership that are highly valued in all societies • help other students contribute positively to any group
Positive Team Member Skills	• work effectively as group members on a difficult and challenging problem or situation	• are able to function effectively in any situation that requires cooperation; this ability contributes to their value in a workplace that is placing increased emphasis on teamwork and also enables them to support their own family structures more comfortably
Consistent, Responsive, and Caring Behavior	• participate in a three-month service activity where they are required to show concern and give attention to special needs of another (i.e., handicapped or elderly) • devise a one-month plan for helping a small town hit by a tornado	• can increase self-esteem by accepting responsibility in activities that are not self-serving • can experience the rewards of connectedness and gratitude because of giving to others • can learn the concept of giving without receiving financial rewards which from time to time will be required of them in their lives (i.e., caring for aging parents, helping others who have suffered loss, a friend out of work, etc.)
Rights and Responsibilities of Self and Others	• develop a videotape illustrating four rights and four responsibilities of a U.S. citizen, a member of a work group, and a member of a family	• are able to demonstrate an understanding of the principles of give and take, compromise, and negotiation in the workplace and at home, which makes them popular leaders and sought-after friends, as well as responsible group or family members
Multicultural and World View	• using a current world crisis (i.e., the Persian Gulf War) as a causal factor, trace the economic, environmental, and social impacts of the crisis in Iraq, Turkey, Saudi Arabia, Iran, France, Great Britain, and India • working with a group, research a particular culture from the standpoint of religion, government, economics, traditions, and work ethics; propose changes or adjustments needed within a U.S. manufacturing company to employ a number of people from that culture; support all conclusions and assumptions with facts or research data • in assigned roles as ambassadors to the United Nations, debate an international plan to combat pollution	• are able to function effectively in a multicultural environment (an environment that is becoming the reality of the 21st Century) • are able to apply broader world vision to solving problems dealing with world trade or working within a culturally diverse company and society, all of which expand their life and work opportunities
Open Mind to Alternative Perspectives	• participate in discussion of the causes of the Persian Gulf War with persons from the Middle East and describe how original views have changed because of the interaction	• become a more creative problem-solver which increases life opportunities and experiences • can continue to grow intellectually and emotionally throughout life by exposing themselves to new perspectives

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Goal 5 Develop students' ability to think and solve problems both in school situations and in a variety of situations similar to what they will encounter in life

What Students Will Learn (Thinking Processes)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Critical Thinking	• develop five ways to reduce the cost of a shower or bath and compare the relative effectiveness of each strategy • research and evaluate men/women who have made the greatest contributions to Kentucky and make recommendations to the Kentucky Hall of Fame	• are able to use critical thinking to their own benefit in comparing and evaluating ideas, products, and processes. This process benefits them and others with the end results of better, wiser decisions
Creative Thinking	• transform a story into a play • create a song, story, play, or painting that expresses the suffering of war	• are able to use creative-thinking processes to benefit both themselves and society by creating new products to solve problems for everyone or new artistic endeavors (stories, songs, paintings, etc.) that everyone can enjoy • are able to express their individual genius in thinking of ways to earn money or to enjoy themselves
Conceptualizing	• create a mural or visual representation that depicts a true image of the county or city in which they live • study parent/guardian and child relationships of fellow students in their school and redefine the concept of family	• can formulate new ideas and redefine ideas and practices to better adapt to changing times • can use the process of conceptualizing to create solutions to personal and business problems
Decision Making	• determine the best site in the county for a waste dump and support their reasons with data • survey the interests of family members and plan a family vacation	• will understand and use educational processes (e.g., information gathering, data collection, processing information, logic reasoning) to make appropriate decisions or evaluate the decisions of others in their business or personal lives
Problem Solving	• research a situation of excessive student tardies and design a set of strategies to reduce tardies • design a "culture kit" of helpful information, ideas, and suggestions that would facilitate a person's first-time visit to a foreign country	• will become creative-problem solvers, who are prepared to become highly skilled in solving business and personal problems in life

Goal 6 Develop students' ability to connect and integrate experiences and new knowledge from all subject matter fields into their own existing knowledge base

What Students Will Learn (Thinking Processes: Ways to Connect Knowledge)	What Students Will Be Able to Do (Examples)	How Students Benefit (Examples)
Applying Multiple Perspectives (Consider a Topic, Problem, Product, or Situation from Different Points of View)	• consider the consequences of a long-term city garbage strike on health, environment, economics, and politics of local government • develop a history of the local community over the past 100 years and connect changes in transportation, family life, employment, health, and use of leisure time	• will be able to see how one idea, form, concept, or notion connects to the next. Students become life-long learners and continue to learn from the media, personal experiences, friends, and family and apply those learnings to everyday life • will benefit from multiple perspectives by expanding the options they can see in their personal circumstances
Developing New Knowledge	• make connections and comparisons between the circulatory system of the body and the electrical system of an automobile • use their knowledge of science, economics, history, government, and sociology to plan how they might survive a nuclear war	• will be able to use perception, intuition, and insight to invent something new in science, technology, art, or discover a breakthrough in human development and relationships as an expression of individual genius
Expanding Existing Knowledge	• rewrite a serious play or story as a comedy and obtain new insights • imagine they are animals of an endangered species facing extinction and develop new ways to protect such animals	• will be able to use their curiosity about how things work and relate to have a more exciting and fulfilling life experience • gets more in touch with their own creativity, intelligence, and problem-solving abilities which in turn enhances self-confidence and self-trust (essentials in leadership)

Part III
Importance of Kentucky's Valued Outcomes for Schools

Valued Outcomes for Student Learning

Kentucky's valued outcomes define what is most important for students to learn. The school curriculum defines what schools teach their students. The designers of Kentucky's school reform law strongly believe that all students can learn at relatively high levels and what is learned should be the same across the state; however, how and when students learn should be based on the needs of individual students. While instruction (how students learn) is decided by the local schools and teachers, both instruction and assessment (how well students learn) must have a direct relationship to Kentucky's valued outcomes. For an "efficient school system," what is expected of students (valued outcomes), what students are taught (the curriculum), and the measurement of how well students are learning (the assessment program) must be completely aligned. In Kentucky's new reform law, curriculum, instruction, and assessment are so closely tied that is impossible to see them as separate processes; however, all three must be tied directly to the valued outcomes.

How Assessment Will Change

If one examines the valued outcomes and the work of the Council on School Performance Standards and its task forces, the following recommendations can be inferred: (1) de-emphasize testing knowledge and skills apart from situations in which they can be applied, (2) emphasize assessments that use a direct measure of performance (e.g., writing, using technology, solving problems); and (3) emphasize the assessment of thinking processes and the interconnectedness of ideas. These recommendations for assessment are consistent with current trends in testing across the nation and around the world.

In recent years, multiple-choice tests, especially standardized achievement tests, have been severely criticized because they have failed to measure what students can do with their knowledge and skills. With the increased demand for accountability and high achievement test scores, teachers have "taught to the test" and have emphasized the *acquisition* of knowledge and skills rather than the *use* of knowledge and skills.

Thus, the nationwide trend, of which Kentucky is a leader, is to develop and implement assessment measures that require students to demonstrate performance on tasks similar to what they might experience in life and to emphasize the use of knowledge and thinking processes. Paper-and-pencil, multiple-choice tests will continue to be used but in conjunction with other assessments that are direct measures of performance.

From 1984-1988, students were given the Kentucky Essential Skills Test (KEST) in reading, writing, mathematics, spelling, and library skills based on more than 600 individual skills identified for those five areas. Since 1989, Kentucky students have been given the Comprehensive Test of Basic Skills (CTBS) based on skills in mathematics, language arts, science, and social studies taught in major textbooks. Both of those tests are paper-and-pencil, multiple-choice tests. They measure mostly factual knowledge and only a part of what is taught in school.

In the new school reform program assessment tasks will require students to apply their knowledge and skills. Also, Kentucky's new assessment program will test more areas including the arts and humanities, practical living and vocational studies, thinking and problem solving, and the personal qualities of self-sufficiency and responsible group membership.

Kentucky's New Statewide Assessment Plan

A significant part of the Kentucky Education Reform Act is the assessment of learning. In early 1992, all Kentucky students in grades four, eight, and twelve will be tested in reading, writing, mathematics, science, and social studies. This testing will establish baseline data against which test results in following years will be compared. In the new plan, all schools will be held accountable for the proportion of students achieving expected levels of performance set by the state. Acceptable levels of improvement will be rewarded, and unsuccessful levels of improvement will have consequences. Thus, Kentucky's plan calls for testing with higher stakes than have ever been associated with a statewide testing program.

Central to the testing plan is the use of many types of testing, including multiple-choice and open-ended questions, event or performance tasks, and extended performance tasks kept in portfolios. All three types will be used in the first year of testing. Over time, increased emphasis will be placed on performance and portfolio assessment. Also, at a later time additional assessments will be added for the subject matter areas of arts and humanities, practical living studies, vocational studies and for personal attributes and thinking processes. Additionally, "scrimmage" or practice tests will be made available to schools for use in grades other than four, eight, and twelve targeted for the formal school accountability testing.

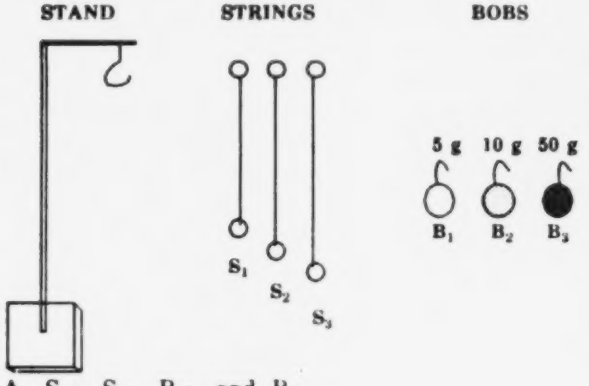
Transition Items (Multiple-Choice and Open-Ended). Paper-and-pencil tests consisting of multiple-choice and open-ended questions can be constructed so they will have a positive effect on instruction and learning. To do this, it is important to develop test questions that focus on the broader, most important skills of reading, writing, computing, or using technology and on the core concepts in the content areas rather than on specific skills and knowledge. Multiple-choice questions followed by open-ended questioning can be constructed to measure critical thinking skills and require students to synthesize and evaluate ideas.

The two sample questions below, one from science and one from social studies, illustrate how test questions in a traditional format can still involve higher order thinking skills.

Ralph believes that each of the following could affect the time it takes for a pendulum to make one complete swing:

1. the length of the string
2. the weight of the bob
3. how far the bob is pulled

In addition to the stand, which set of strings and bobs could Ralph use to test all three beliefs?



A. S_1, S_2, B_1, and B_2
B. S_1, S_2, S_3, and B_1
C. S_3, B_1, B_2, and B_3
D. S_3 and B_3

Even though citizenship may have been granted to a particular group, history shows that many of the group's rights as citizens are achieved only piecemeal over time.

What evidence from U.S. history is there to support the statement above?

The response to the science question is clearly not one that students would have memorized. The question requires students to apply their knowledge of manipulation and control of variables in the design of an experiment. Of course, an open-ended question, still administered via a paper-and-pencil test, could require students to describe a complete experiment they might conduct to test a given hypothesis.

The open-ended social studies question above acknowledges that all students may not have the same set of specific facts at their command. Students have a choice in the use of the knowledge that they do have to support the position stated in the question. This question might be considered a thematic question; the students might choose to discuss historical events pertaining to women, blacks, or any of a number of minority groups. The question requires students to link ideas from history spanning decades or even centuries.

Also, new reading tests have been developed for some statewide testing programs that can have a very positive influence on instruction while using multiple-choice and open-ended questions. Such tests use reading material of high interest to students and similar to what they might encounter in the real world (e.g., newspaper articles, textbook passages, technical manuals, and excerpts from important literature). Test questions are constructed that are the most important for students to answer to demonstrate their understanding of what they have read. These questions can require students not only to read what is written but also to infer what is meant between and beyond the lines of the text. The use of a variety of passages on tests from different subject areas (e.g., science, social studies, mathematics, literature, the arts) communicates to teachers that the teaching of reading is not just the responsibility of language arts teachers.

Event/Performance Tasks. Event tasks that directly measure performance related to a skill area, core concept, personal attribute, or thinking process are tasks that will require approximately forty minutes or one class period each to complete and will result in a scorable product that can be recorded or picked up and evaluated at a later date. In the new assessment program it is envisioned that for event tasks, trained test administrators would set up as many as five stations in a room at which individual students or teams of students would perform the tasks. Some tasks could be more like long, open-ended questions. Students would be provided resource materials and asked to produce a written or recorded oral response. Other event tasks could require the use of manipulative, measuring devices, scientific equipment, calculators, computers, or other applied technology equipment. Two examples of event performance tasks are presented below.

1. Estimating, Measuring, and Calculating - Grade Four
   Students are provided a two-liter bottle filled with water, 12-ounce party cups, and plastic ice. They are given the following problem with expected responses.

   > You are planning a party for 15 friends and you are trying to decide how much soft drink to buy. Assume each friend will need two cups of soft drink with ice.
   >
   > 1. Estimate how many party cups with ice can be filled with a two-liter bottle.
   > 2. Estimate the number of two-liter bottles you will need for your party.
   > 3. Fill a number of party cups with plastic ice and measure how many cups actually can be filled with a two-liter bottle.
   > 4. Using this information, calculate how many two-liter bottles you will need based on your measurement.
   > 5. Fill a number of party cups half full of ice and again measure how many cups can be filled with a two-liter bottle.
   > 6. How many more cups can you fill with a two-liter bottle if you fill the cups completely with ice as compared to using only a half cup of ice?

2. Marketing Your Services - Grade Twelve
   You have applied for summer employment with the United States Park Service. You have been notified that the park service has a limited number of jobs available in a large national park (a) waiting dining-room tables in a mountain lodge, (b) assisting a park naturalist in setting up exhibits, and (c) assisting a children's activities director. In place of an interview, you have been asked to make a three- to five-minute videotape describing your personal attributes and strengths related to one of these three jobs and why the park service should consider you for the job you want. You have 25 minutes to prepare your video presentation. When you are ready, notify the assessment proctor and he/she will start the video recording equipment. You are to begin your presentation by stating your full name, address, and the specific job you are seeking. Then in three- to five-minutes, present your best case to a potential employer about why you are a desirable candidate for the job.

Portfolios and Portfolio Tasks. Unlike transition items and event tasks, which are administered at a given time (an event) in a controlled testing situation with responses or products on demand at the end of the testing period, portfolio tasks are completed throughout the course of the school year. Tasks are given to students to complete are placed in a "portfolio" or student's file, preferably as part of the regular instruction. A considerable amount of decision making regarding the specific tasks and the contents of portfolios will be left to teachers and students. However, teachers will be provided specifications to assure that the kind of work included in portfolios can be scored using the state's criteria or indicators of quality. Portfolio tasks could be similar to event tasks but allow students time to revise and refine their

presentation or products beyond what is possible in a forty-minute on-demand testing situation. Also, portfolio tasks could be long-term research or development projects. Examples of two portfolio tasks are presented below.

1. Making an Alien Environment More Friendly - Grade Eight

   You have been employed by a company called Planets Unlimited. Its mission is to make the environment of other planets more friendly or adaptable to humans. You are to find out all you can about the conditions on the surface of other planets in our solar system and to select a planet which you believe has an environment that could be converted or adapted so humans could work and live there. Your task is to come up with the best idea for an invention, device, or system that would make the environment of the planet more friendly to the systems of the human body. Your ideas might provide oxygen to breath, water to drink, food to eat, or create a more comfortable climate. All ideas must use the resources of the planet you select. You are to develop drawings and written specifications of your ideas and/or invention for presentation to the Board of Directors of Planets Unlimited. You should be prepared to convince the Board that your ideas are worthy of them investing money for development.

2. Engineering Teenage Behavior - Grade Twelve

   Data shows your high school has one of the lowest average daily attendance rates in the region. Loss of funds to the school due to student absences last year was equivalent to the salary of two teachers or the price of a room of computers. You and three other classmates makeup a team of four that has been given the task of studying the problem and developing strategies to reduce student absences in your school. Any recommendations you make should take into account the need to maintain a positive school environment. You are to investigate the major causes of absences, the behavior patterns of the target population of absentees, and the school's incentives for student attendance. You and your colleagues will present your findings and recommendations to the School Council. The student team with the most convincing data, analysis, and recommendations to address the school's absentee problem will receive cash awards.

Continuous Assessment (Local Testing)

Kentucky's new reform law requires local schools to develop and implement a continuous assessment program that monitors the progress of each student in achieving Kentucky's valued outcomes. It prepares students for the accountability assessments at grades four, eight, and twelve. This means that local school districts and local schools, with assistance from the Kentucky Department of Education, will need to develop assessments that mirror those used in the school accountability assessment: (1) multiple-choice and open-ended items, (2) event performance tasks, and (3) portfolio tasks. Kentucky's Department of Education is developing scrimmage items of these three types of assessment items that can be used as practice tests and to measure the learning progress of all students. The Department of Education's Office of Assessment and Accountability Services is developing programs to assist districts and schools in developing their local assessment programs.

How the School Curriculum Will Change

The most critical change that valued outcomes will have on the school curriculum will be the focus of what is most important for students to learn. In the past, scope and sequence documents often have listed hundreds of very specific behavioral objectives for each grade level. An example from mathematics might be, "divide four-digit dividends by two-digits divisors with remainders;" from reading, "identify the stated main idea and identify the main idea inferred." For kindergarten through grade twelve, the Kentucky Essential Skills Program produced curriculum guides that contained more than 600 specific objectives for reading, writing, mathematics,

spelling, and library reference skills. Very little information was provided about how and where those skills should be used. Even though students might perform well on a skills test, they often could not read or write well, solve problems, or think critically.

Valued outcomes will require schools to focus on large units of learning that describe what students must be able to do. For example, in the skill area of writing the valued outcome states that the students demonstrate the ability to produce written documents for different audiences and for different purposes: expressive (a diary or a journal), transactive (a report or letter), and imaginative (a story or poem). Individual writing skills are not ignored. Skills are considered important but are not the main focus of learning. Rather, the ability to write well becomes the main focus. Students learn to write very early in school and continue to develop their writing skills through high school. The same is true for each of the seventy-five valued outcomes. Each will be introduced at the earliest developmental level appropriate for the child and then developed and extended throughout their education. Instead of curriculum guides that list specific behaviorial objectives for each grade, Kentucky's new curriculum framework will describe and explain a level of performance for each valued outcome at each grade level, with examples of assessment tasks that illustrate what students should be able to do. The creation of such a curriculum framework will be the responsibility of the Kentucky Department of Education's "Office of Learning Programs Development."

The specifics of how the school curriculum is organized and what content is taught in different courses is a local district decision. While the Department of Education is charged to develop exemplary curricula showing how they can be organized around the valued outcomes, the Department also will encourage local districts to be innovative in their approaches to organizing the curriculum. Some districts may choose to organize around the traditional disciplines of science, mathematics, history, economics, art, music, etc. Other districts may choose broad organizing themes related to social or environmental issues and develop interdisciplinary programs. All curriculum organization models that address the skill areas, core concepts, personal attributes, and thinking processes described by the valued outcomes are also acceptable. For most districts, this will mean placing more emphasis on the development of thinking skills and processes and on the personal attributes in goals 3 and 4.

How Instruction Will Change

Many of the previously described changes for the curriculum also will occur for instruction, the delivery of the curriculum. Whereas instruction over the past decade has focused on the acquisition of specific knowledge and the demonstration of specific skills, instruction in the future will focus more on helping students demonstrate top-quality performances in reading, writing, and problem solving and on the use of knowledge. Drill and learning of facts will remain important but only as a means to increasing student performance in writing, solving problems, making decisions, or producing a product. The new emphasis clearly will be on the use of skills and knowledge in situations similar to what students will experience in life and in the adult world.

Many of the valued outcomes will require teachers to use a different set of learning experiences than in the past. For example, students will need more opportunities to practice writing, more opportunities to develop and deliver oral presentations, more

opportunities to learn to express ideas and emotions through the arts and to use technology. If students are to develop self-sufficiency, they will need to be put in situations where they are required to be adaptable to new situations, to demonstrate self-discipline, and to be resourceful. If students are to become responsible members of a group, they will need to work in challenging group situations in which they can develop team skills, interpersonal skills, and an openness to different points of view. If students are to become problem solvers, good decision makers, and critical thinkers, they will have to be presented complex tasks in which they are challenged and provided opportunities to demonstrate performances with a generous amount of coaching and feedback.

Since students have different interests, needs, and motivation, the selection of different tasks that teach the same valued outcome will be very important. Instructional programs that use portfolios as a means for students to present and keep a record of their work enable students to make individual choices about learning and to take more responsibility for their own learning.

In Kentucky's school reform program, "teaching to the test" is not only acceptable but highly desirable. Since we are most interested in developing and assessing performance, it is important to provide students a good representative sample of "scrimmage" items that are (1) multiple-choice/open-ended transition items, (2) event performance tasks, and (3) portfolio tasks. Good assessment items and tasks also can make good teaching tasks. Practice in writing, making presentations, solving complex problems, and producing critical analyses of art forms prepares students for the accountability assessment in grades four, eight, and twelve, and give students in post-secondary academic/vocational training a competitive edge in the job market and the opportunity for a more productive life.

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